

		<b>G.S.D. S.r.l.</b> Certified in accordance with <b>UNI EN ISO 9001:2008</b> by <b>TÜV Rheinland Italia S.r.l.</b> <b>Certificate N. 39 00 1850509</b>	
<b>G.S.D. Srl</b> <b>PISA - Italy</b>		<b>Test Report n. FCC-16721B</b>		Rev. 00 DRAFT00	
<b>Manufacturer</b>		<b>Extronics Ltd</b>			
Address		Midpoint 18, 1 Dalton Way Middlewich CW 10 0HU United Kingdom			
<b>Test Family Name</b>		<b>iRFID500</b>			
		FCC ID: 2AIZEEXTRFID00001			
<b>Testing Laboratory Name</b>		<b>G.S.D. S.r.l.</b>			
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http – e-mail		<a href="http://www.gsd.it">www.gsd.it</a> - <a href="mailto:info@gsd.it">info@gsd.it</a>			
		FCC Listed: Registration Number: 424037			
<b>Location and Date of Issue</b>		Pisa, 2016 September, 30			
<div style="text-align: center;"> <b>G.S.D. s.r.l.</b>          Via Marmiceto, 8          56121 OSPEDALETTO - PISA          Tel. 050.984254 - Fax 050.984262          P. IVA 01343950505       </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="text-align: center;">         SENIOR EMC TEST MANAGER  <i>Dr. Gian Luca Genovesi</i>   </div> <div style="text-align: center;">         QUALITY MANAGER  <i>Dr. David Pelliccia</i>   </div> </div>					

<b>INDEX</b>	
<b>1. MANUFACTURER AND EUT IDENTIFICATION .....</b>	<b>3</b>
<b>2. REFERENCE STANDARDS.....</b>	<b>5</b>
<b>3. TEST GENERALITY, RESULT, CONDITION, MEASUREMENT UNCERTAINTY.....</b>	<b>6</b>
<b>4. RADIATED EMISSIONS.....</b>	<b>8</b>
<b>5. POWERLINE CONDUCTED EMISSIONS.....</b>	<b>11</b>
<b>6. PHOTO.....</b>	<b>14</b>

<b>1. MANUFACTURER AND EUT IDENTIFICATION<sup>1</sup></b>	
<b>Manufacturer</b>	<b>Extronics Ltd.</b>
Address	Midpoint 18, 1 Dalton Way Middlewich CW 10 0HU United Kingdom
<b>Test Family Name</b>	<b>iRFID500</b>
	FCC ID: 2AIZEEXTRFID00001
Date of reception	<b>2016 August, 30</b>
Sampling	<b>Laboratory sample for certification</b>
Test Item Description	<b>RFID Device</b>
Nominal Input Voltage	<b>5 Vdc</b>

<sup>1</sup>A detailed documentation is preserved in the internal fascicle.



*Fig. 1.1  
Equipment Photo*

## 2. REFERENCE STANDARDS

Tests and measurements are performed accordingly to the reference standards given in the table below:

<i>TEST</i>	<i>STANDARD</i>
Emissions: Radiated – Section 15.109	FCC Rules and Regulations, Title 47 Part 15 – Sub part C  ANSI C63.4 2014 – American National Standard for Methods of Measuring of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz
Emissions: Conducted – Section 15.107	FCC Rules and Regulations, Title 47 Part 15 – Sub part C  ANSI C63.4 2014 – American National Standard for Methods of Measuring of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz

**3. TEST GENERALITY, RESULT, CONDITION, MEASUREMENT UNCERTAINTY****Sub-part 2.1033(b)****Test And Measurement Data**

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2 and the following individual Parts: 15.109; Unintentional Radiators

**Standard Test Conditions and Engineering Practices**

Except as noted herein, the following conditions and procedures were observed during the testing: In accordance with ANSI C63.4-2014, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures.

All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

**Summary of Test Results**

<i>TEST</i>	<i>RESULT</i>
<i>Emissions: conducted Section 15.107</i>	<i>Pass</i>
<i>Emissions: radiated Section 15.109</i>	<i>Pass</i>

**Measurement uncertainty**

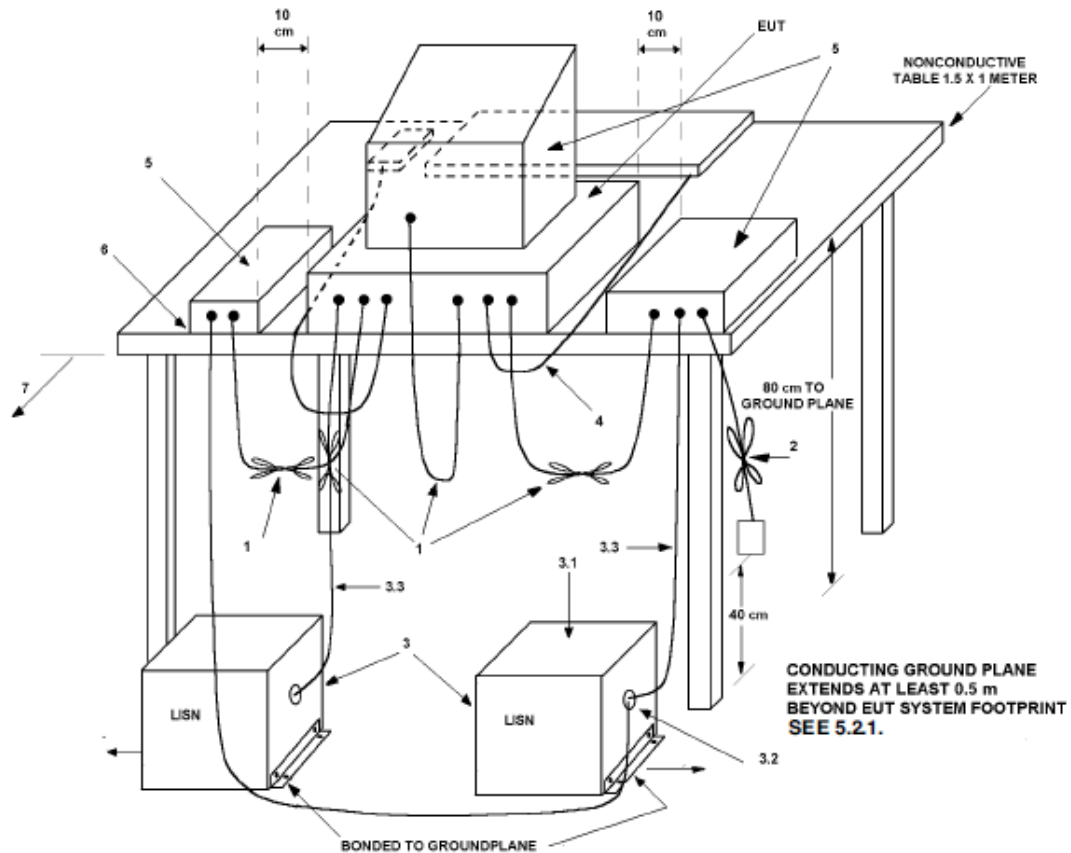
<i>TEST</i>	<i>EXPANDED UNCERTAINTY</i>
Conducted Emission – 50Ω/50μH (150 kHz - 30 MHz)	± 3.5 dB
Radiated Emission – (Semianechoic Room) (30 MHz - 18 GHz)	± 4.7 dB

**Climatic Conditions**

<i>PARAMETER</i>	<i>VALUE</i>
Temperature	(294 ± 3) K
Relative humidity	(50 ± 5) %

**Extensions**

The results refer only to the sampled EUT and under the specified conditions.



Conducted and Radiated EUT Test Set-up example (ANSI C63.4 2014)

Test Mode: the EUT was used with a personal computer and it was tested with standard SW CAEN "New RFID Show" Controlled by USB.

**4. RADIATED EMISSIONS**

In the following table you can find the limits established by the reference standard:

FREQUENCY RANGE (MHz)	<i>Field Strenght</i> <i>QUASI-PEAK LIMITS</i> [dB (μV/m)]
30 ÷ 88	40
88 ÷ 216	43,5
216 ÷ 960	46
Above 960	54

Test Equipment

EQUIPMENT	MANUFACTURER	MODEL	CAL. DUE
MXE EMI Receiver	Agilent/Keysight	N9038A	01/2017
Anechoic Chamber	Comtest	CSA01	01/2017
Bilog Antenna	Schaffner	CBL6112B	01/2017
Horn Antenna	EMCO	3115	01/2017
Horn Antenna	Alpha Industries	61932500	01/2017
Controllor	Deisel	HD100	01/2017
Turn Table	Deisel	MA240	01/2017
LISN	GSD	NTW06	01/2017

Test procedure: RE22R02Notes

Azimuth position EUT-Antenna corresponding to 0° identifies the rotating table orientation (TT) in which the instrument to be tested shows the front part turned towards the antenna. Positive grades individuate clockwise rotations of TT when this one is observed from the top. For negative degrees, TT rotation is anticlockwise.

Antenna height respect to the mass plane is conventionally individuated with: MA=XXX where XXX indicates the height (always positive for e>100) expressed in cm.

Antenna horizontal polarisation is indicated by POL=H.

Antenna vertical polarisation is indicated by POL=V.

EUT was tested in the three ortogonal planes.

Results and conclusions

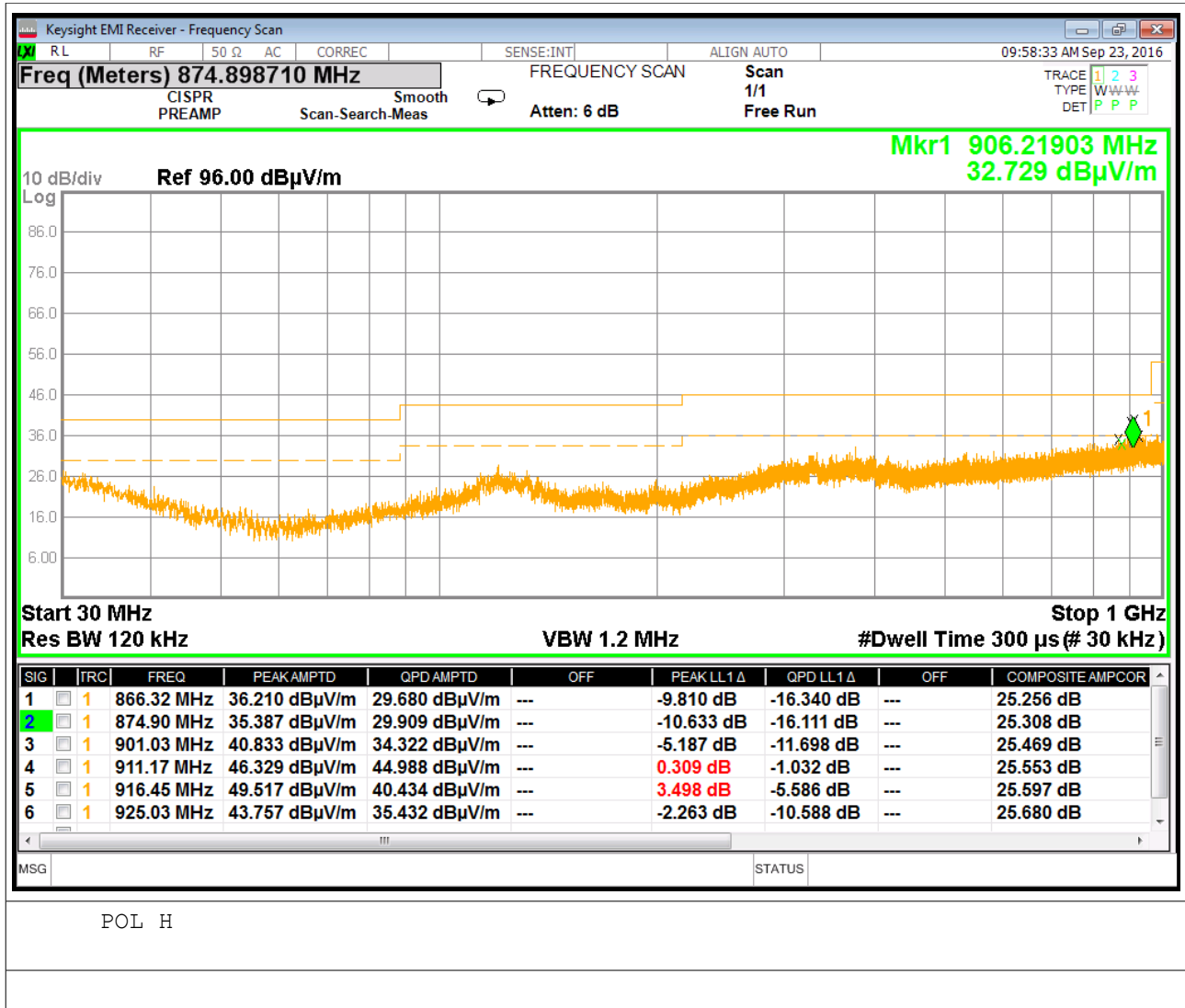
In all the operative conditions, equipment complied with the standard limits. Graphics in following figures show the most significant registrations of the performed measurements.

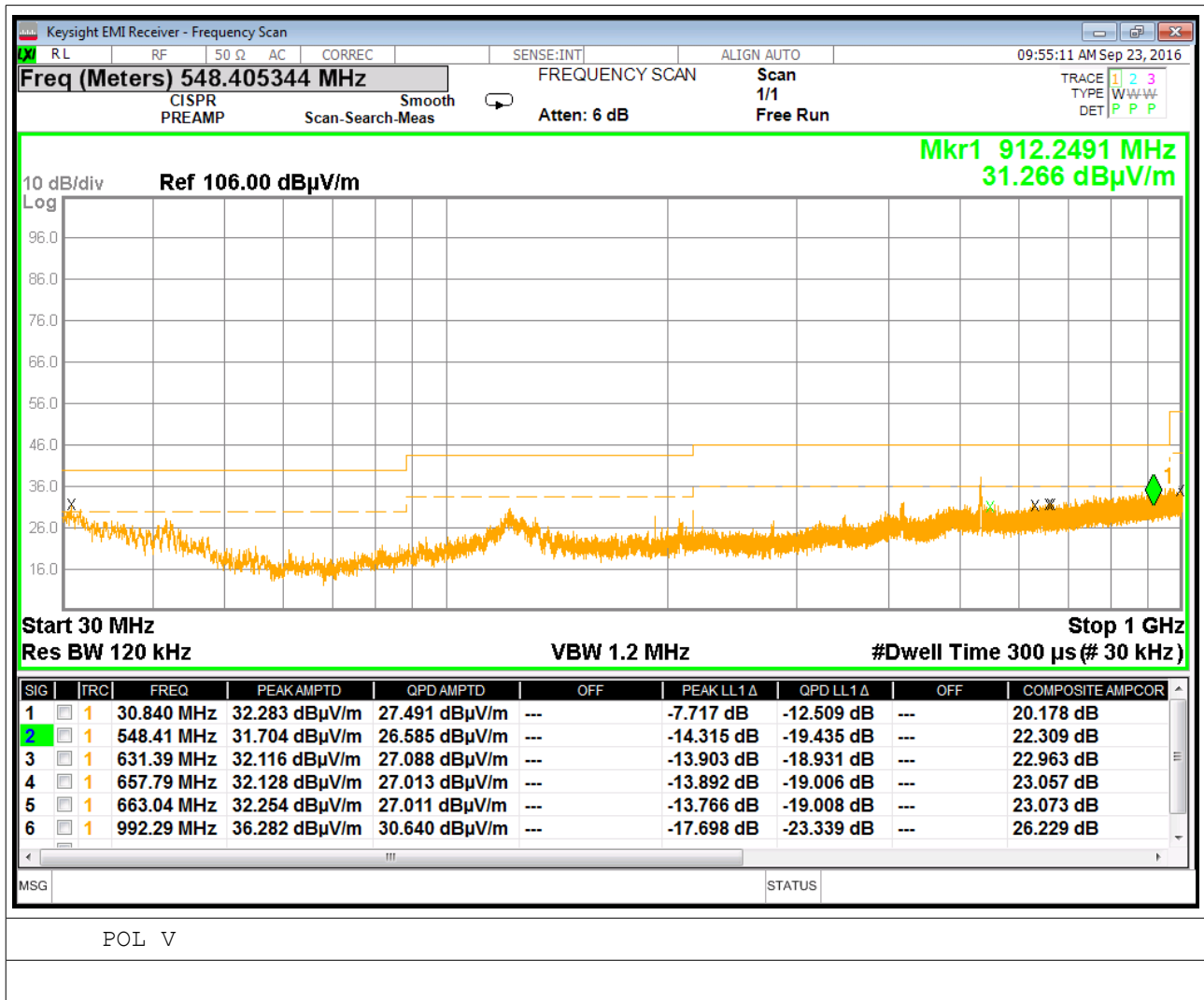
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*Report n. FCC-16721B Rev. 00 DRAFT00, page 8 / 15*







**5. POWERLINE CONDUCTED EMISSIONS**

Equipment shall meet the limits below when using a CISPR16 quasi-peak and average detector receivers.

FCC, 15.107

<b>FREQUENCY RANGE</b> (MHz)	<b>QUASI-PEAK LIMIT</b> [dB (μV)]	<b>AVERAGE LIMIT</b> [dB (μV)]
0.15 ÷ 0.50	66 ÷ 56 <sup>(*)</sup>	56 ÷ 46 <sup>(*)</sup>
0.50 ÷ 5	56	46
5 ÷ 30	60	50

<sup>(\*)</sup> Limit decreasing linearly with logarithm of frequency

**Test Equipment**

<b>EQUIPMENT</b>	<b>MANUFACTURER</b>	<b>MODEL</b>	<b>CAL. DUE</b>
MXE EMI Receiver	Agilent/Keysight	N9038A	01/2017
Screened Room	GSD	CSC01	01/2017
LISN	GSD	NTW06	01/2017

**Test procedure: CE22R01**

The EUT power cable was connected to a LISN and the monitored output of the LISN was connected to a spectrum analyzer. The conducted emissions from 150 kHz to 30 MHz were monitored and compared to the specification limits

**Test method**

Test method was in accordance with the reference standard.

EUT modes of operations were tested in order to achieve the maximum level of emission.

**Results**

Equipment complied with the test specification limits.

Graphics in following figures show some registrations of the frequency spectrum of the conducted emissions.

Job Number FCC-16721B  
 Test Name Power line Conducted Emissions  
 FCC 15.107  
 EUT Name iRFID500

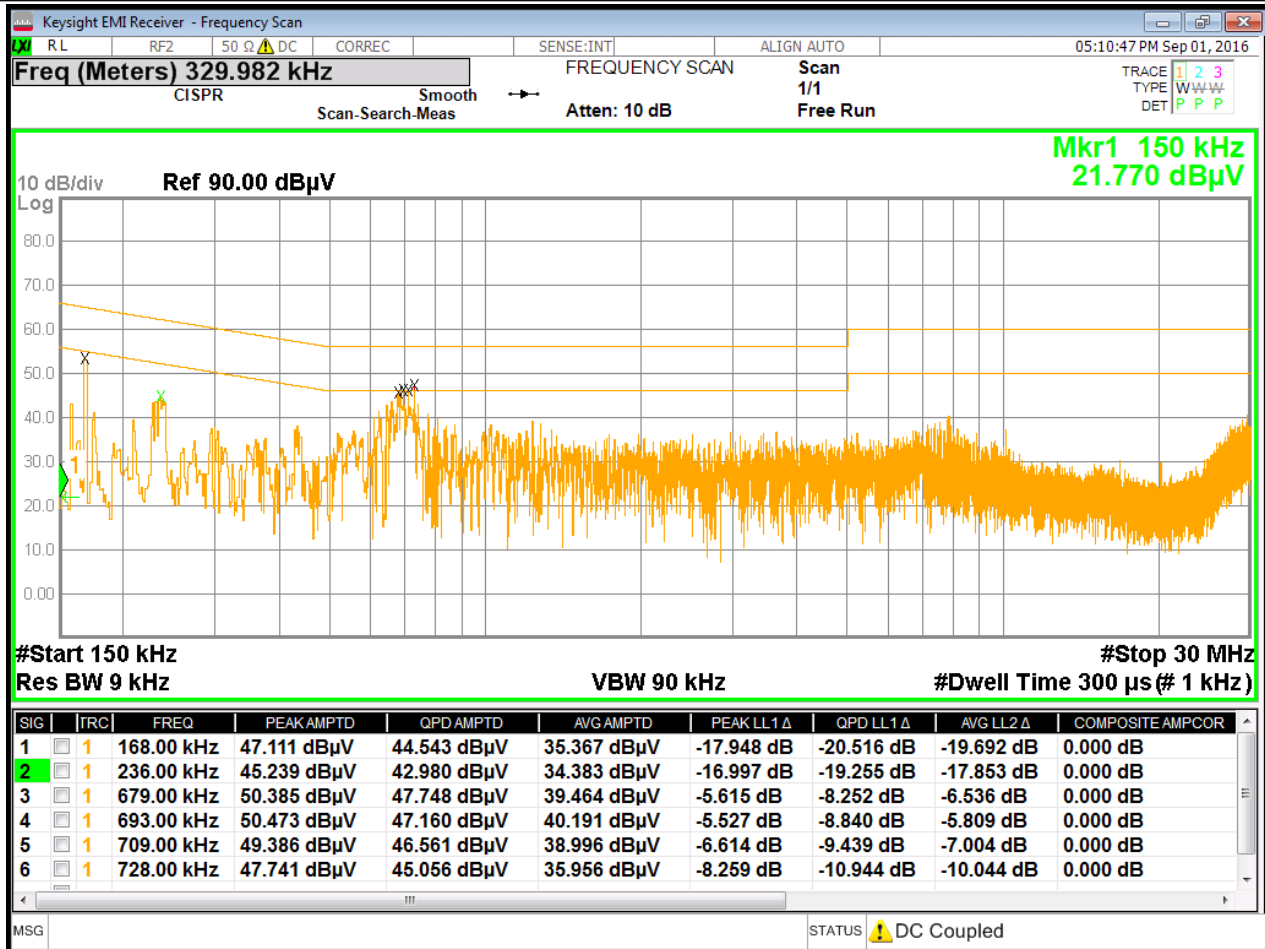


Fig. 5.1

Phase 1

B Band (0.15 – 30 MHz)

Job Number FCC-16721B  
 Test Name Power line Conducted Emissions  
 FCC 15.107  
 EUT Name iRFID500

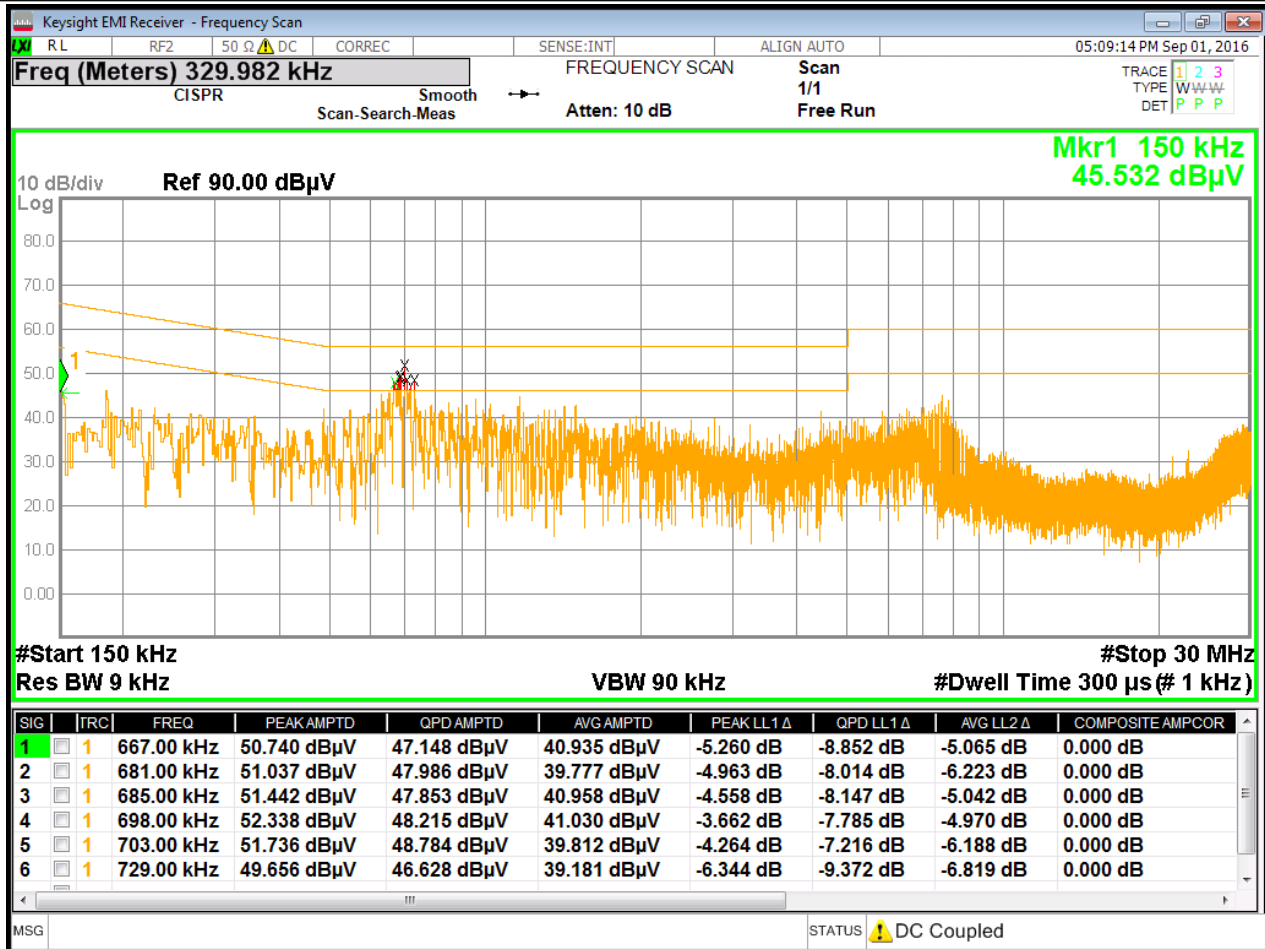
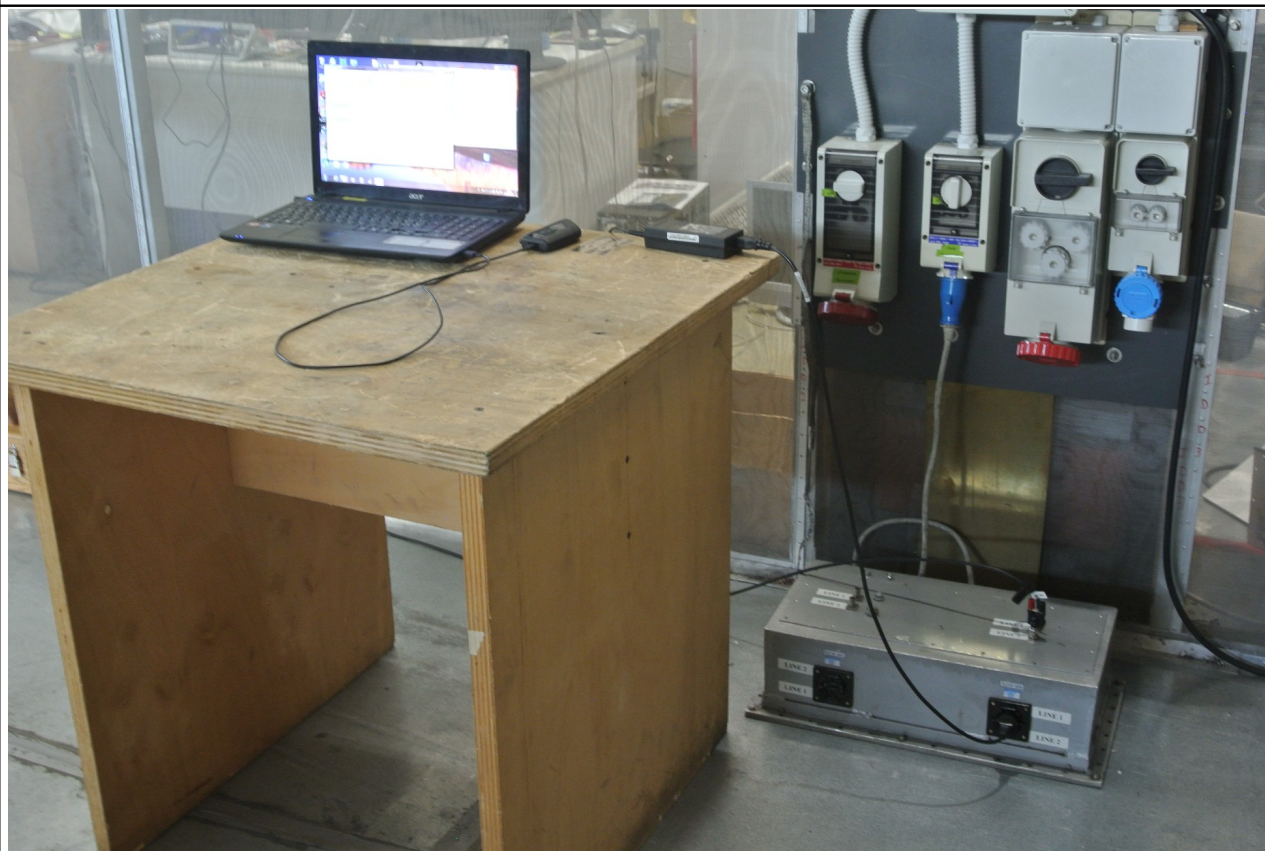


Fig. 5.2

Phase 2

B Band (0.15 – 30 MHz)

## 6. PHOTO



*Fig. 6.1*

*Conducted Emissions Test Set-up*





*Fig. 6.2*

*Radiated Emissions Test Set-up*